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Mosher, Edith R.
Studies of our cone-bearing trees

Botany
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GERSTEIN

CONE-BEARING TREES

MOSHER

Of gentler mould, of softer mood,
  One prone to pause or dream;
A stately poet of the wood,
  The lofty Pine doth seem.

—*H. Kelso.*

Botany
Flora

STUDIES OF

Our Cone-Bearing Trees

BY

EDITH R. MOSHER

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WASHINGTON, D. C.

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To the Tree-lover
who seeks also sentiment
in this neighborly family
of "God's Out-of-Doors."

PREFACE

The opportunities for getting acquainted with the trees are everywhere. A friendly intimacy is assured if we have learned to obsserve while merely passing through the familiar shady parks and pathways.

"What we learn in youth grows up with us and in time becomes a part of the mind itself." If encouraged to observe, the child will soon know the trees on the road to school, and, though silent, they become interesting and progressive instructors surrounded by enthusiastic groups of children.

If we learn to know the trees, we make for ourselves lasting acquaintances that will add daily to our pleasures in life.

"Nature never did betray
The heart that loved her; 'tis her privilege,
Through all the years of this our life, to lead
From joy to joy; for she can so inform
The mind that is within us, so impress
With quietness and beauty, and so feed
With lofty thoughts, that neither evil tongues,
Rash judgments, nor the sneers of selfish men,
Nor greetings where no kindness is, nor all
The dreary intercourse of daily life
Shall e'er prevail against us, or disturb
Our cheerful faith that all which we behold
Is full of blessing."

—Wordsworth.

"What we love and seek in nature is the peace typified by its harmony and repose." Wandering through cathedral aisles in "God's first temples" brings refreshing peace to the soul.

To know the trees is to love them. Let us get acquainted at once with this large neighborly family in "God's Out-of-Doors."

EDITH R. MOSHER.

August, 1909.

Washington, D. C.

INTRODUCTION

As an introductory study to the cone-bearing trees, it seems advisable to give only the most important members of this large and interesting family. If the main characteristics of these representatives are learned, others belonging to the family will be readily recognized.

In order to introduce the reader formally before venturing upon a more intimate association, I will quote from the Dendrologist of the U. S. Department of Agriculture. Mr. George B. Sudworth, to whom I am much indebted for advice and assistance, as follows: Family CONIFERAE.

"This family includes the pines (Pinus), spruces (Picea), larches or true tamaracks (Larix), hemlocks (Tsuga), false hemlocks (Pseudotsuga), firs or 'balsam firs' (Abies), 'bald cypress' (Taxodium), arborvitaes or 'cedars' (Thuja), true cypresses (Cypressus and Chamaecyparis), red wood and big tree (Sequoia), and junipers or 'cedars' (Juniperus). In all but the last group these trees bear a fruit which is a distinctly woody cone. The junipers produce a berry-like fruit, which, though not woody, is, however, morphologically a cone."

The leaves of conifers are small and scale-like or long and needle-like. In all but the bald cypresses (Taxodium) and larches (Larix), the leaves remain on the trees for several years, which has given them the name of "evergreens."

The characteristics of the juvenile growth are sometimes quite different from those of the mature tree, and trees grown in the open receiving the full benefit of unobstructed sunlight, are entirely different in general appearance from those grown in forest environment.

The range of growth, whether natural or acquired, has been the determining factor in selecting family representatives.

The drawings for this work have been made from a study of the specimens and from the most authentic illustrations available, and are believed to be accurate. They are sketchy and artistic, and without the excessive detail which would only lead to confusion in an introductory study.

The nomenclature and habitat of species have been carefully compared with the "Check List of Forest Trees of the United States" (U. S. Forestry Bulletin No. 17), by Mr. Geo. B. Sudworth, Dendrologist.

Some of the photographs have been taken especially for this work, others were furnished through the courtesy of the U. S. Geographical Survey, and the Forest Service, U. S. Department of Agriculture.

E. R. M.

Transfused through you, O mountain friends!
With mine your solemn spirit blends,
And life no more hath separate ends;
I read each misty mountain sign,
I know the voice of wave and pine
And I am yours and ye are mine.
Life's burdens fall, its discords cease,
I lapse into the glad release
Of Nature's own exceeding peace.

—*Whittier.*

Photograph by U. S. Geological Survey: W. Cross

White Pine (Pinus Strobus). (*a*) flowering branch with staminate flowers. (*b*) flowering branch with pistillate flowers. (*c*) fruiting branch. Tree 100 to 250 feet high. There are 34 species of the Pine in the United States, widely distributed over the entire area.

White Pine, Minnesota.

The White Pine is the tallest, the most stately, and beautiful of all our cone-bearing trees.

—*Our Native Trees, Keeler.*

The needle leaves set in scaly sheaths at the base distinguish the Pines from all other evergreens.

If Mother Nature patches
The leaves of trees and vines,
I'm sure she does her darning
With the needles of the Pines!

They are so long and slender;
And sometimes in full view,
They have their threads of cobwebs,
And thimbles made of dew! —*Selected.*

On yonder mountain-side a vine
Clings at the foot of a mother Pine;
The tree bends over the trembling thing,
And only the vine can hear her sing;
"Sleep, sleep, little one, sleep—
What shall you fear when I am here?
Sleep, little one, sleep."
—*A Norse Lullaby, Eugene Field.*

This tree is picturesque, even in decrepit age, towering in stately dignity over the heads of neighbour trees, adding distinction to all sylvan scenery.

—*The Tree Book, Julia E Rogers.*

Hail to the Chief who in triumph advances!
Honored and blessed be the ever green Pine!
Long may the tree, in his banner that glances,
Flourish, the shelter and grace of our line!
Heaven send it happy dew,
Earth send it sap anew,
Gayly to bourgeon and broadly to grow,
While every Highland glen
Sends our shout back again,
"Roderigh Vich Alpine dhu, ho! ieroe!"

Ours is no sapling, chance-sown by the fountain,
Blooming at Beltane, in winter to fade,
When the whirlwind has stripped every leaf on the mountain,
The more shall Clan-Alpine exult in her shade,
Moored in the rifted rock,
Proof to the tempest's shock,
Firmer he roots him the ruder it blow;
Monteith and Breadalbane, then,
Echo his praise again,
"Roderigh Vich Alpine dhu, ho! ieroe!"

—*Boat Song, Lady of the Lake, Scott.*

The Pine, long-haired and dark and tall
In lordly right, predominant o'er all;
Much they admire that old religious tree,
With shaft above the rest up-shooting free,
And shaking, when its dark locks feel the wind,
Its wealthy fruit with rough mosaic rind.

—*Leigh Hunt.*

"Bearded with moss," is more than a poet's fancy. Tufts of gray moss are found abundantly on the trunks of all pines that grow in damp, close, northern woods; the thread is round and fine like a hair, and a bunch of the moss constantly suggests the gray beard of an old man. —*Our Native Trees, Keeler.*

The Pines are all evergreen trees. Their branches are more or less thickly clothed with clusters of needle-like leaves in bundles. * * *

Both staminate and pistillate flowers are borne usually on different branches of the same tree. Staminate flowers are bud-like bodies, at the ends of mature leafy branches. They are bright red, yellow, or orange. The pistillate flowers which produce the cones are greenish, scaly, cone-like bodies, near the ends of young growing shoots. —*Sudworth.*

Red Spruce (Picea Rubens). (*a*) flowering branch with staminate flowers. (*b*) flowering branch with pistillate flowers. (*c*) fruiting branch. Tree 70 to 80 or 100 ft. high. There are 7 species of Spruce, widely distributed through the United States.

Spruce, Park Specimen.

The branches of the Spruce grow in regularly distant circles and the needles have a characteristic spiral arrangement.

The Red Spruce is dark, yellow-olive green in color. It resolves itself into an intensely dark, black-green, as it is seen among the deciduous trees in summer time on the flanks of the great mountains.

You may as well forbid the mountain pines
To wag their high tops, and to make no noise
When they are fretted with the gusts of heaven.
—*Shakespeare.*

The Red Spruce in mountain fastnesses is the most picturesque tree imaginable; it rivals the Cypress of the Southern Swamps. * * * It rises far above its neighbors from a bed of damp moss and pale-tinted ferns, with tall sheer trunk, and scragged limbs draped with hoary moss, the acknowledged king of the wilderness. It bears all the marks of a hard fight for life amid opposing elements, but winter's storms and biting arctic winds avail nothing, for, in spite of them, the tree climbs to the very borders of the Alpine region.
—*Familiar Trees, Mathews.*

O, the pleasant woods of Spring-time!
When baby ferns awake,
Their tiny fingers opening,
While buds to blossoms break.

The walnuts hang their tassels out,
The willows bend to greet
The crocuses and violets,
Up-springing at their feet.

O, the joyous woods of Summer!
When under mantles green,
The forest trees are gathering
The sunlight's golden sheen.

In mossy dells, by tinkling rills,
The birches robed in white
Are guarded by the giant oak,
Their steadfast stalwart knight.

O, the peerless woods of Autumn!
When flaming are the trees
In tawny sunlight shimmering,
Or, flashing in the breeze.

The maples blushing give their wealth
The chestnuts shower down
Their treasurers rich, with priceless gems
From black oak's golden crown.

O, the magic woods of Winter!
When snowflakes in the air
With spotless robes are covering
The branches brown and bare.

The spruce and hemlock, pine and fir,
Are wearing still their green,
And thus throughout the changing year,
The lovely woods are seen.

—*The Beautiful Woods, Sarah C. Padelford.*

The Spruces are evergreen trees with sharp-pointed pyramidal crowns and conspicuously straight, tapering trunks. The branches grow in regularly distant circles. Their stiff, often keenly-pointed, single leaves have a characteristic spiral arrangement. * * *

Both staminate and pistillate flowers are borne on different branches of the same tree. The staminate flowers are drooping, yellow, bright purple, or rose red cylindrical bodies. The pistillate flowers which produce the cones, are erect, yellowish-green or bright red bodies of similar form. —*Sudworth.*

Larch or Tamarack (Larix Americana). (*a*) flowering branch. (*b*) staminate flowers. (*c*) pistillate flowers. (*d*) fruiting branch. Tree 50 to 60 ft. high. There are 3 species of the Larch in the United States, widely distributed over the northern and mountainous regions.

Larch, Oregon

We recognize the Tamarack by its charactertistic horizontal branches and soft fine foliage.

Robins in the tree-top,
Blossoms in the grass,
Green things a-growing
Everywhere you pass;
Pine-tree and willow-tree,
Fringed elm and larch,—
Don't you think that May-time's
Pleasanter than March?
—*Marjorie's Almanac, Selected.*

March! March! March! They will hurry
Forth at the wild bugle-sound;
Blossoms and birds in a flurry,
Fluttering all over the ground.
Hang out your flags, birch and willow!
Shake out your red tassels, larch!
Up, blades of grass, from your pillow!
Hear who is calling you — March!
—*March, Lucy Larcom.*

The cones of both the American and European Larches hang on the branches through the winter.
—*Studies of Trees in Winter, Annie Oakes Huntington.*

"Give me of your roots, O Tamarack!
Of your fibrous roots, O Larch Tree!
My canoe to bind together,
So to bind the ends together
That the water may not enter,
That the river may not wet me!"
And the Larch, with all its fibers,
Shivered in the air of morning,
Touched his forehead with its tassels,
Said, with one long sigh of sorrow,
"Take them all, O Hiawatha!" —*Longfellow.*

It is the first mild day of March,
Each minute sweeter than before;
The redbreast sings from the tall larch
That stands beside the door.
* * * * *
There is a blessing in the air,
Which seems a sense of joy to yield
To the bare trees, and mountains bare,
And grass in the green field.

One moment now may give us more
Than fifty years of reason;
Our minds shall drink at every pore
The spirit of the season.
—*The Spirit of the Season, Wordsworth.*

I have looked on the hills of the stormy north,
And the larch has hung all his tassels forth;
The fisher is out on the sunny sea,
And the reindeer bounds o'er the pastures free,
And the pine has a fringe of softer green,
And the moss looks bright where my foot hath been.
—*The Voice of Spring, Mrs. Hemans.*

The flowers of the Tamarack are not conspicuous, but they repay the one who looks for them. The yellow staminate clusters, like little powdery knobs, soon fall; but the pistillate ones, conical, with green bracts, alternating with rosy scales, are beautiful along the twig against the lettuce green of the opening foliage clusters. —*The Tree Book, Julia E. Rogers.*

The Larches lose their leaves every fall, their branches becoming bare in winter and in spring putting forth new foliage. The leaves resemble somewhat other conifers in being needle-shaped; but they are really distinct from all the rest of our native cone-bearers in being produced in little brush-like bundles. * * *

Both staminate and pistillate flowers are borne singly on the same branches. The staminate flowers are yellow-green bodies about the size of a small pea; the pistillate flowers which produce the cones are usually bright purple or red, and are accompanied by a bundle of leaves. —*Sudworth.*

Hemlock (Tsuga Canadensis). (*a*) flowering branch with staminate flowers. (*b*) flowering branch with pistillate flowers. (*c*) fruiting branch. Tree 60 to 70, occasionally 100 ft. high. There are 4 species of the Hemlock in the United st ıtes, widely distributed over the entire area.

Hemlock, Agricultural Grounds. Washington, D. C.

The Hemlock is one of the most beautiful and best known of our native conifers. It has a graceof growth, especially when young, which is lacking in most evergreens. —*Clarence M. Weed.*

This is the forest primeval. The murmuring pines and the hemlocks,
Bearded with moss, and in garments green, indistinct in the twilight,
Stand like Druids of eld, with voices sad and prophetic,
Stand like harpers hoar, with beards that rest on their bosoms,
Loud from its rocky caverns, the deep-voiced neighboring ocean
Speaks, and in accents disconsolate answers the wail of the forest.
This is the forest primeval. —*Evangeline. Longfellow.*

The boughs of this tree are plumelike and drooping, and have an appearance of feathery lightness. * * * There is no phase of tree life more beautiful than that presented by the Hemlock clothed in its springtime garb,—the tips of the dark green sprays are painted in yellow- green with a fairylike daintiness. * * * But a young, full-foliaged Hemlock on the edge of the pasture is a very different character from the dark gloomy tree in the forest shades; here, its straight stem rises to great height with few or no lower branches.

—*Familiar Trees, F. S. Mathews.*

I have something more to say about trees. I have brought down this slice of hemlock to show you. I have studied the growth of this tree by its rings, and it is curious. Three hundred and forty-two rings. Started, therefore, about 1510. The thickness of the rings tells the rate at which it grew. For five or six years the rate was slow,—then rapid for twenty years. A little before the year 1550 it began to grow very slowly, and so continued for about seventy years. In 1620 it took a new start and grew fast until 1714, then for the most part slowly until 1786, when it started again and grew uniformly until within the last dozen years, when it seems to have got on sluggishly.

Look here! Here are some human lives laid down against the periods of its growth. This is Shakspeare's. The tree was seven inches in diameter when he was born; ten inches when he died. A little less than ten inches when Milton was born; seventeen when he died. Then comes a long interval, and this thread marks out Johnson's life, during which the tree increased from twenty-two to twenty-nine inches in diameter. Here is the span of Napoleon's career;—the tree doesn't seem to have minded it.

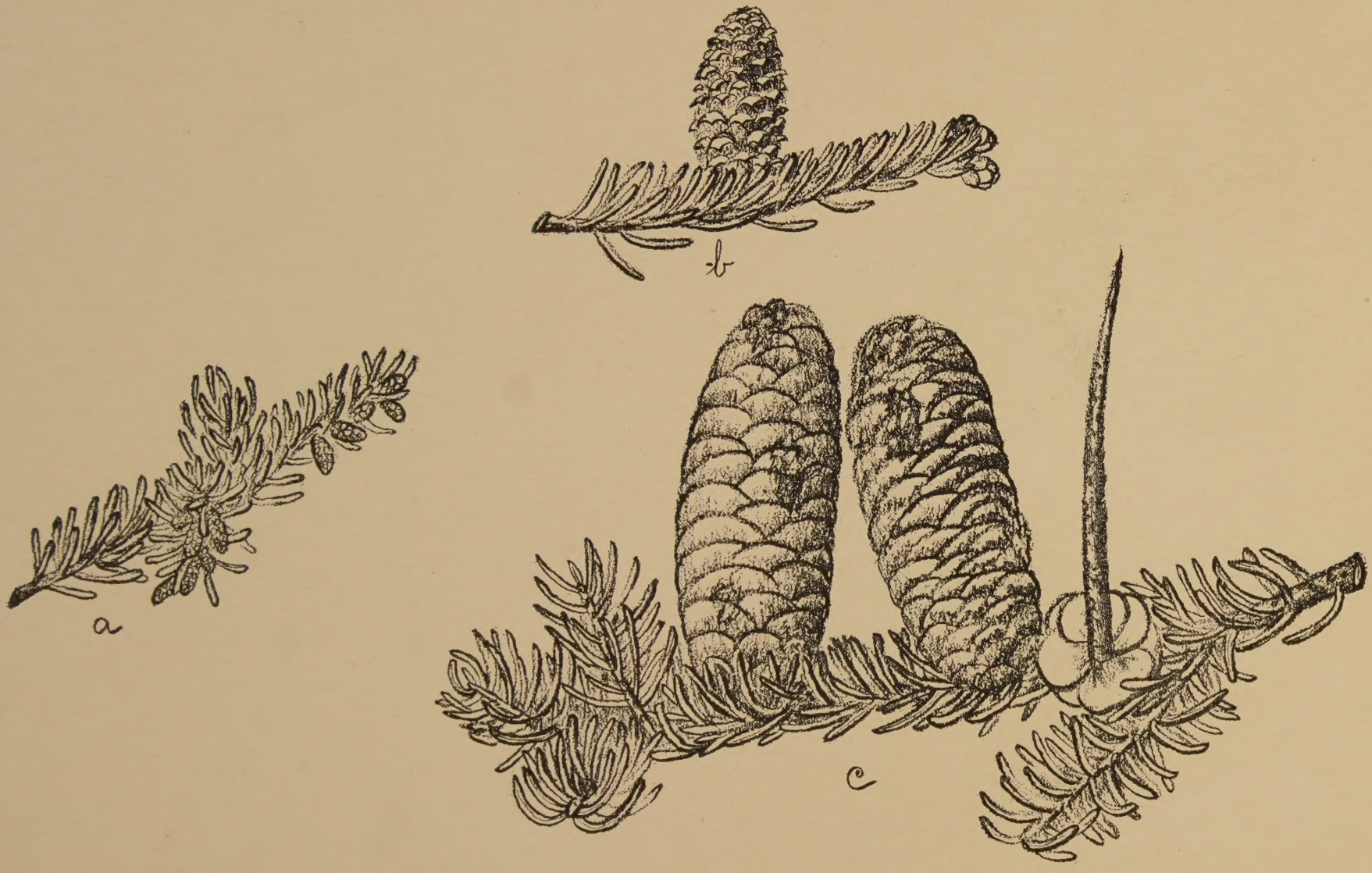
I have seen many wooden preachers,—never one like this. How much more striking would be the calendar counted on the rings of one of those awful trees which were standing when Christ was on earth, and where that brief mortal life is chronicled with the stolid apathy of vegetable being, which remembers all human history as a thing of yesterday in its own dateless existence.

—*The Autocrat of the Breakfast Table, Holmes.*

C Hemlock tree! O Hemlock tree! how faithful
are thy branches!
Green not alone in summer time,
But in the winter's frost and rime!
O Hemlock tree! O Hemlock tree! how faithful
are thy branches! —*Longfellow.*

The Hemlocks are evergreen trees. Their branches grow at irregular intervals. The leaves which have small thread-like stems, are spirally arranged around the branch, but by the twisting of their stems they appear to grow mainly from the two opposite and upper sides of the branches. * * *

Both staminate and pistillate flowers are borne separately on different parts of the same tree. The pistillate flowers which produce the cone grow at the ends of the sprays and are small, greenish, scaly bodies. The staminate flowers are borne singly from buds at the bases of the leaves and are small yellowish bodies attached by thread-like stems. —*Sudworth.*



Balsam Fir (Abies Balsamea). (*a*) flowering branch with staminate flowers. (*b*) flowering branch with pistillate flowers. (*c*) fruiting branch. Tree 50 to 60 ft. high. There are 9 species of Fir in the United States, widely distributed mainly through the northern and mountainous regions.

Fir, Park Specimen

The Balsam Firs are native Americans, and have served as Christmas trees for several centuries. The erect cones of this tree distinguish it.

O singing Wind searching field and wood,
Canst thou find aught that's good,—
Flowers, to kiss awake,
Or dewy grass, to shake,
Or feathered seed aloft to speed?

Replies the Wind: "I cannot find
Flowers to kiss awake, or dewy grass to shake
Or feathered seed aloft to speed;
Yet I meet somewhere sweet,
When the scented Fir,—balsam-breathing Fir—
In my flight I stir. —*Edith M. Thomas.*

Hark, hark! What does the Fir tree say?
Standing still all night, all day—
Never a moan from over his way.
Green through all the winter's gray—
What does the steadfast Fir tree say?
Creak, creak! Listen! "Be firm, be true,
The winter's frost and the summer's dew
Are all in God's time, and all for you.
Only live your life, and your duty do,
Be brave and strong, steadfast and true."
—*The Fir Tree, Luella Clark.*

Yon household fir,
A guardian planted to fence off the blast,
But towering high the roof above, as if
Its humble destination were forgot.
—*The Excursion, Wordsworth.*

I remember, I remember,
The Fir trees dark and high;
I used to think their slender tops
Were close against the sky:
It was a childish ignorance,
But now 'tis little joy
To know I'm farther off from heaven
Than when I was a boy. —*Thomas Hood.*

These little Firs to-day are things
To clasp into a giant's cap;
Or fans to suit his lady's lap.
From many winters, many springs,
Shall cherish them in strength and sap,
Till they be marked upon the map,
A wood for the wind's wanderings.
—*A Young Fir-Wood, Dante G. Rossetti.*

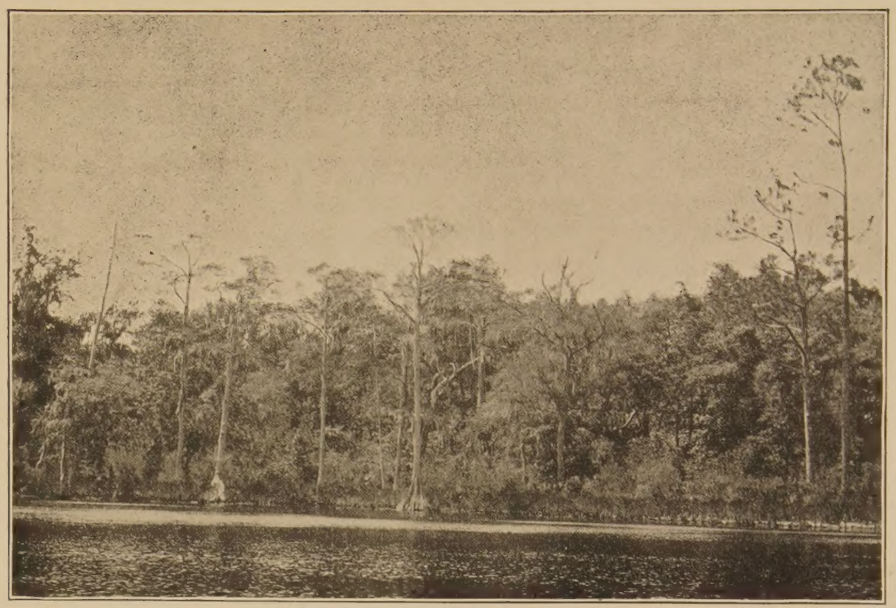
"Give me of your balm, O Fir Tree!
Of your balsam and your resin,
So to close the seams together
That the water may not enter,
That the river may not wet me!"
And the Fir Tree, tall and somber,
Sobbed through all its robes of darkness,
Rattled like a shore with pebbles,
Answered waiting, answered weeping,
"Take my balm, O Hiawatha!"
—*Longfellow.*

The cones of the Fir trees stand erect on the stems. When they open to shed the seed, the scales fall at the same time. This leaves the central axis standing.
—*Ten Common Trees, Susan Stokes.*

The Firs are evergreen trees. Their sharply defined heads of dense foliage and arrowlike stems distinguish them among other trees. Whors of comparatively small branches grow from the trunk at regular distances. * * The leaves, spirally arranged on the branches, appear to grow more or less distinctly from two opposite sides. * * *

Both staminate and pistillate flowers are borne on different parts of the same tree. The pistillate flowers which produce the cones are short, rounded or elongated scaly bodies, standing erect and singly on the branches. The staminate flowers are elongated scaly bodies hanging singly among the leaves from the lower sides of the branches. —*Sudworth.*

Bald Cypress (Taxodium Distichum). (*a*) flowering branch. (*b*) flowering branch with staminate flowers. (*c*) flowering branch with pistillate flowers. (*d*) fruiting branch. Tree 100 to 150 ft. high. There are 2 species of the Bald Cypress in the United States, confined to the eastern and southern coast regions.



Forest Scene in Florida, Scattered Bald Cypress Trees

The Bald Cypress is a funereal-looking tree of the Southern swamps, whose picturesque, spirelike contour and grim stateliness are qualities not without a certain charm. The tree is often surrounded by water, from which it rises straight as an arrow. Growing up from the roots are strange, lumpy growths called "knees", which invariably attract attention,

—*Familiar Trees, F. S. Mathews.*

Under the Cypresses, here in the stony
Woods of the mountains, the spring too is sunny:
Rare spring and early,
Birds singing sparely,
Pale sea-green hellebore smelling of honey.

Desolate bright in the blue Lenten weather
Cones of the Cypresses sparkle together
Shining brightly
As, loosely and lightly.
The winds lift the branches which stir like the feather.

Here only hellebore grows, only shade is;
Surely the very spring here half afraid is;
Out of her bosom
Drops not a blossom
Mutely she passes through,—she and her ladies.

—*Robinson.*

There is a strangeness in the ways and majestic aloofness of the Bald Cypress. It is not as other trees. The function of the "knees" is chiefly to strengthen the roots that the tree may anchor itself safely in a yielding soil. They are not present in the trees grown on high land.

—*A Guide to the Trees, Alice Lounsberry.*

Alas for him who never sees
The stars shine through his cypress trees!
Who, hopeless, lays his dead away,
Nor looks to see the breaking day
Across the mournful marbles play!
Who hath not learned in hours of faith,
The truth to flesh and sense unknown,
That Life is ever Lord of Death,
And Love can never lose its own!

—*Snow Bound, Whittier*

Away, away, from men and towns,
To the wild wood and the downs—
To the silent wilderness
Where the soul need not repress
Its music lest it should not find
An echo in another's mind,
While the touch of Nature's art
Harmonizes heart to heart.

Radiant Sister of the Day,
Awake! Arise, and come away!
To the wild woods and the plains,
And the pools where winter rains
Image all their roof of leaves,
Where the pine its garland weaves
Of sapless green and ivy dun
Round stems that never kiss the sun.

—*The Invitation, Shelley.*

The Larch and the Bald Cypress are tree eccentricities. Like the broad-leaved trees, they drop their foliage each autumn, and appear in spring clothed in complete new suits of tender green. But their flowers and their cones show unmistakably that they are cousins to the pines. —*With the Trees, Maud Going.*

The leaves of the Bald Cypress are deciduous. They are of two kinds: narrow, thin, spreading, apparently two-ranked, and forming a flat spray; and minute, over-lapping scale-like leaves wnich appear on the flowering stem.

The staminate flowers are in long terminal panicles, and the pistillate flowers which bear the fruit, are scattered near the ends of the branches of the previous year. They are borne on different branches of the same tree. —*Sudworth*

Arborvitae or White Cedar (Thuja Occidentalis). (*a*) flowering branch. (*b*) fruiting branch. Tree 50 to 60 ft. high. The 2 species indiginous to the United States are in the northern region. Of these there are recognized in cultivation 59 varieties.

Arborvitæ, Agricultural Grounds, Washington, D. C.

The flat leaf spray of the Arborvitae plainly distinguishes it from other evergreens.

The Arborvitae has been extensively cultivated as an ornamental tree for at least a century.

—*Our Native Trees, Keeler.*

Yes, I will be thy priest, and build a fane
In some untrodden region of my mind,
Where branched thoughts, new-grown with pleasant
pain,
Instead of pines, shall murmur in the wind:
Far, far around shall those dark-clustered trees
Fledge the wild-ridged mountains, steep by steep;
And there by zephyrs, streams, and birds, and bees,
The moss-lain Dryads shall be lull'd to sleep;
And in the midst of this wide quietness
A rosy sanctuary will I dress
With the wreath'd trellis of a working brain,
With buds, and bells, and stars without a name,
With all the gardener Fancy e'er could feign,
Who, breeding flowers, will never breed the same.
And there shall be for thee all soft delight
That shadowy thought can win:
A bright torch, and a casement ope, at night,
To let the warm Love in. —*Ode to Psyche, Keats.*

How little I know of that Arborvitae when I have heard only what science can tell me. —*Thoreau.*

In some ambiguous trees connected with the tribe (as the Arborvitae) there is no proper stem to the outer leaves, but all the extremities form a kind of coralline leaf, flat and fern-like, but articulated like a crustacean animal, which gradually concentrates and embrowns itself into the stem. The thicker branches of these trees are exquisitely fantastic; and the mode in which the ffat system of leaf first produces an irregular branch and then adapts itself to the symmetrical cone of the whole tree, is one of the most interesting processes of form which I know in vegetation.

—*Modern Painters, Ruskin.*

Now the joys of the road are chiefly these:
A crimson touch on the hardwood trees;

A vagrant's morning wide and blue,
In early fall, when the wind walks, too;

A shadowy highway cool and brown,
Alluring up and enticing down

From rippled water to dappled swamp,
From purple glory to scarlet pomp;

The outward eye, the quiet will,
And the striding heart from hill to hill;

The tempter apple over the fence;
The cobweb bloom on the yellow quince;

The palish asters along the wood,—
A lyric touch of the solitude;

The resonant far-listening morn,
And the hoarse-whisper of the corn;

An idle noon, a bubbling spring,
The sea in the pine-tops murmuring;

The racy smell of the forest loam,
When the stealthy, sad-heart leaves go home;

These are the joys of the open road—
For him who travels without a load.

—*The Joys of the Road, Bliss Carman.*

Little glands containing fragrant balsam are found in the leaves of the Arborvitae.

The Arborvitaes are evergreen trees commonly known as cedars. The foliage consists of minute, overlapping, scale-like leaves, arranged as in the cedars, and conspicuously flat. The branches are arranged in one plane, forming a flat spray. The very light wood has an exceedingly characteristic aromatic odor.

Both staminate and pistillate flowers are borne on the same tree, usually on different twigs. They are minute and inconspicuous. —*Sudworth.*

Juniper or Red Cedar (Juniperus Virginiana). (*a*) flowering branch. (*b*) fruiting branch. Tree 20 to 60 ft. high. There are 11 species of the Juniper in the United States, widely scattered over the entire area.

Juniper, Maryland

This vagrant tree.

O'er yon bare knoll the pointed cedar shadows
Drowse on the crisp gray moss. —*Lowell.*

"Give me of your boughs, O Cedar!
Of your strong and pliant branches,
My canoe to make more steady
Make more strong and firm beneath me!"
Through the summit of the Cedar
Went a sound, a cry of horror,
Went a murmur of resistance;
But it whispered, bending downward,
"Take my boughs, O Hiawatha!"
—*Longfellow.*

A golden flute in the cedars,
A silver pipe in the swales,
And the slow large life of the forest
Wells back and prevails.
—*Earth's Lyric, Bliss Carman.*

I lie under a ragged Cedar on the eastern bank. Its shadows and odors are a tent, and its leaning branches brush my face when the wind stirs, and its odors house me in their sacred balsam. The winds sing lazily through the trees and touch the quiet Cedars into indolent motion.
—*In God's Out-of-Doors, William A. Quayle.*

High on a hill a goodly cedar grewe,
Of wondrous length and straight proportion,
That farre abroad her dainte odours threwe;
'Mongst all the daughters of proud Lebanon
Her match in beauty was not anie one.
—*Spenser.*

In russet robes the Ivy lies
Upon the mound of stone;
A scarlet sash the Woodbine ties
Around the Cedar's cone.

And over all the Autumn air
Lies like a golden flood;
The works of God seem perfect there,
Within the grand old wood. —*Hugh Kelso.*

Jes' so our spring gits everythin' in tune
An' gives one leap from April into June:
Then all comes crowdin' in; afore you think,
Young oak-leaves mist the side-hill woods with pink;
The catbird in the laylock-bush is loud;
The orchards turn to heaps o' rosy clouds;
Red-cedars blossom tu, though few folks know it,
An' look all dipt in sunshine like a poet.
—*Biglow Papers, Lowell.*

What is the secret the pine-trees know
That keeps them whispering, soft and low?
All day long in the breezes swaying,
What can it be they are always saying?
—*Secrets, Jennie G. Clarke.*

The staminate flowers of the Junipers or Red Cedars make their presence evident by giving a golden tinge to the bough, so that when cedars blossom they look "all dipped in sunshine like a poet." But the individual flowers are so tiny and so hidden among the needle-like foliage that only breezes and botanists can find them. —*With the Trees, Maud Going.*

The Junipers, some of which are commonly called "Cedars", are evergreen trees, either with branchlets closely covered by short, minute, scalelike leaves, or with branchlets bearing much longer needle-like leaves which stand out loosely at irregular intervals. * * * The fruit of the junipers, popularly called "berries," clearly distinguishes them. * * *

Both staminate and pistillate flowers are borne on different trees, rarely on the same tree. They are minute and inconspicuous. The "berries" are morphologically cones. —*Sudworth.*

Photograph by U. S. Geological Survey: B. Willis.

Away on a northern mountain
  A lonely Pine is found;
A mantle of white infolds him,
  And ice and snow surround.
—*A Song*, *Heine.*

White ermine now the mountains wear,
And shield with this their shoulders bare.
The dark Pine wears his cap of snow
As Ethiop doth white turban wear. —*Selected.*

How bright the unfading evergreen,
  Amid the forest trees!
In Summer and Winter there 'tis seen
  To wave to the passing breeze. —*Selected.*

Another common attribute of evergreen forests is their characteristic silence. Birds do not frequent them as much as the leafy forests. In winter, as we push through the thickets of small spruces or hemlocks, or stand for awhile beneath lofty Pines, while all around is muffled in snow, the silence seems sanctified and vaster than elsewhere. —*Selected.*

In the fretful East
The uneasy wind moans with its sense of cold,
And sends its sighs through gloomy mountain gorge
Along the valley, up the whitening hill,
To tease the sighing spirits of the pines,
And waste in dismal woods their chilly life.

* * *

The sky is dark and on the huddled leaves—
The restless, rustling leaves—sifts down its sleet,
Till the sharp crystals pin them to the earth,
And they grow still beneath the rising storm.

* * *

The leafless trees
Lashed their lithe limbs, and with majestic voice,
Call to each other through the deepening gloom.
—*Bitter Sweet*, *J. G. Holland.*

The beech is bare and bare the ash,
  The thicket white below;
The fir-tree scowls with hoar mustache,
  He cannot sing for snow.

The body-guard of veteran pines,
  A green batallion stands;
They ground their arms, in ordered lines,
  For winter so commands.

The waves are dumb along the shore,
  The river's pulse is still;
The north-wind's bugle blows no more
  Reveille from the hill.

The rustling sift of falling snow,
  The muffled crush of leaves,
These are the sounds suppressed, that show
  How much the forest grieves.

But as the blind and vacant Day
  Crawls to his ashy bed,
I hear dull echoes far away
  Like drums above the dead.

Sigh with me, Pine that never changed!
  Thou wear'st the Summer's hue;
Her other loves are all estranged,
  But thou and I are true!
—*December*, *Bayard Taylor.*

Their spiral-like shape fits cone-bearing trees for life in regions where snow falls heavily. * * * The peculiar form of their foliage also fits pines and their kin to live in regions of deep snowfall. Hemlocks, pines, spruces, cedars, and firs are prepared by having stiff slender little leaves which are popularly known as "needles." * * * The flakes fall from the curved and shining surfaces, and sift through the feathery branches towards the ground.
—*With the Trees*, *Maud Going.*

I sift the snow on the mountains below,
And their great Pines groan aghast;
And all the night 'tis my pillow white,
While I sleep in the arms of the blast.
—*The Cloud, Percy Bysshe Shelley.*

Announced by all the trumpets of the sky,
Arrives the snow; and driving o'er the fields
Seems nowhere to alight; the whited air
Hides hills and woods, the river, and the heaven,
And veils the farm-house at the garden's end.
The sled and traveller stopped, the courier's feet
Delayed, all friends shut out, the housemates sit
Around the radiant fireplace, enclosed
In a tumultuous privacy of storm.
Come and see the north wind's masonry.
Out of an unseen quarry, evermore
Furnished with tile, the fierce artificer
Curves his white bastions with projected roof
Round every windward stake, or tree, or door.
Speeding, the myriad-handed, his wild work
So fanciful, so savage; nought cares he
For number or proportion. Mockingly,
On coop or kennel he hangs Parian wreaths.
A Swan-like form invests the hidden thorn;
Fills up the farmer's lane from wall to wall,
Maugre the farmer's sighs; and at the gate
A tapering turret overtops the work.
And when his hours are numbered, and the world
Is all his own, retiring as he were not,
Leaves, when the sun appears, astonished Art
To mimic in show structures, stone by stone,
Built in an age, the mad wind's night-work,
The frolic architecture of the snow.
—*The Snow Storm, Emerson.*

A lonely Fir tree standing
On a northern barren height;
It sleeps, and the ice and snowdrift
Cast round it a garment of white. —*Heine.*

Softer than silence, stiller than still air
Float down from high pine-boughs the slender leaves.
The forest floor its annual boon receives
That comes like snowfall, tireless, tranquil, fair.
Gently they glide, gently they clothe the bare
Old rocks with grace. Their fall a mantle weaves
Of paler yellow than autumnal sheaves
Or those strange blossoms the witch-hazles wear.
Athwart long aisles the sunbeams pierce their way;
High up, the crows are gathering for the night;
The delicate needles fill the air; the jay
Takes through their golden mist his radiant flight;
They fall and fall, till at November's close
The snow-flakes drop as lightly—snows on snows.
—*The Snowing of the Pines, T. W. Higginson*

In the storm, like a prophet o'ermaddened,
Thou sighest, and tossest thy branches;
Thy heart with the terror is gladdened,
Thou forbodest the dread avalanches,
When whole mountains sweep valeward.
—*To a Pine Tree, James Russell Lowell.*

These winter nights, against my window-pane
Nature with busy pencil draws designs
Of ferns and blossoms and fine spray of pines, * *
Quaint arabesques in argent, flat and cold,
Like curious Chinese etchings,—By and by,
Walking my leafy garden as of old
These frosty fantasies shall charm my eye
In azure, damask, emerald, and gold.
—*Frost-Work, Thomas Bailey Aldrich.*

The delicate tracery of twig and bough
Stands revealed against winter's frosty sky.
Bring us the airs of hills and forests,
The sweet aroma of birch and pine;
Give us a waft of the north wind laden
With sweet brier odors and breath of kine.
—*Whittier.*

The God of Music dwelleth out of doors.
All seasons through his minstrelsy we meet,
Breathing by field and covert haunting-sweet
From organ-lofts in forest old he pours
A solemn harmony; on leafy floors
To smooth autumnal pipes he moves his feet,
Or with the tingling plectrum of the sleet
In winter keen beats out his thrilling scores.
Leave me the reed unplucked beside the stream,
And he will stoop and fill it with the breeze;
Leave me the viol's frame in secret trees,
Unwrought, and it shall wake a druid theme;
Leave me the whispering shell on Nereid shores.
The God of Music dwelleth out of doors.
—*The God of Music, Edith M. Thomas.*

And clustering spangles lodge and shine
In the dark tresses of the Pine.
The ragged bramble, dwarfed and old,
Shrinks like a beggar in the cold;
In surplice white the Cedar stands,
And blesses him with priestly hands.
—*Midwinter, Trowbridge.*

"The pine tree is the deepest bass instrument in the tree orchestra—
"Its cloudy boughs singing, as suiteth the pine,
To snow-bearded sea-kings old songs of the brine."

Forest Scene in Maine; Red Fir and Spruce

One little hour to lie unseen
Beneath thy scarf of leafy green!
So, curtained by a singing Pine,
Its murmuring voice shall blend with mine,
Till, lost in dreams, my faltering lay
In sweeter music dies away.
—*Midsummer, Oliver Wendell Holmes.*

The solemn Pines along its shore,
The Firs which hang its gray rocks o'er
Are painted on its glassy floor.
—*The Funeral Tree of the Sokokis, Whittier.*

The cedar and the mountain pine, the willow on the fountain's brim,
The tulip and the eglantine, in reverence bend to Him;
The songbirds pour their sweetest lays, from tower and tree and middle air;
The rushing river murmurs praise—all Nature worships there! —*Natures Temple, David Vedder.*

Under the yaller pines I house,
When sunshine makes them all sweet scented.
An' hear among their furry boughs
The baskin' west wind purr contented.
—*Biglow Papers, Lowell.*

Hey! little evergreens, sturdy and strong!
Summer and autumn time, hasten along.
Harvest the sunbeams, then bind them in sheaves,
Range them and change them to tufts of green leaves.
Delve in the mellow mold, far, far, below,
And so, little evergreens, grow!
Grow, grow! grow, little evergreens, grow!

Up, up so airily to the blue sky,
Lift up your leafy tips stately and high;
Clasp tight your tiny cones, tawny and brown;
By and by, buffeting rains will pelt down,
By and by, bitterly, cold winds will blow,
And so, little evergreens, grow!
Grow, little evergreens, grow!

Gather all uttermost beauty, because—
Hark, till I tell it now—how Santa Claus,
Out of the northern land, over the seas,
Soon shall come seeking you, evergreen trees!
Seek you with reindeer, soon, over the snow.
And so, little evergreen, grow!
Grow, little evergreens, grow!

What if the maple flare flaunting and red,
You will bear waxen-white tapers instead.
What if now, other where, birds are beguiled,
You shall soon nestle the little Christ-child!
Ah, the strange splendor the fir tree shall know
And so, little evergreens, grow!
Grow, grow, grow, little evergreens, grow!
—*The Little Fir Trees.*

As sunbeams stream through liberal space
And nothing jostle or displace,
So waves the pine-tree through my thought
And fanned the dreams it never brought.
—*Emerson.*

And amidst this delicate delight of cottage and field, the young pines stand delicatest of all, scented as with frankincense, their slender stems straight as arrows, and crystal white, looking as if they would break with a touch, like needles; and their arabesques of dark leaf pierced through and through by the pale radiance of clear sky, opal blue, where they follow each other along the soft hill-ridges, up and down.
—*Modern Painters, Ruskin.*

Pleasant it was, when woods were green,
And winds were soft and low,
To lie amid some sylvan scene,
Where, the long drooping boughs between
Shadows dark and sunlight sheen
Alternate come and go.

Or where the denser grove receives
No sunlight from above
But the dark foliage interweaves
In one unbroken roof of leaves,
Underneath whose sloping eaves
The shadows hardly move.

Beneath some patriarchal tree
I lay upon the ground:
His hoary arms uplifted be,
And all the broad leaves over me
Clapped their little hands in glee,
With one continuous sound.

* * * *

Before me rose an avenue
Of tall and sombrous Pines;
Abroad their fan-like branches grew,
And, where the sunshine darted through,
Spread a vapor soft and blue,
In long and sloping lines.

—*Voices of the Night, Longfellow.*

The wind makes solos in the sombre Pine,
Upon the hillside desolate and lone.

—*R. K. Munkittrick.*

Beneath the forest's skirts I rest,
Whose branching Pines rise dark and high,
And hear the breezes of the West,
Among the thread-like foliage sigh.

—*Bryant.*

With such noise
As the rough winds of autumn make when they
Pass o'er a forest, and bend down the Pines.

—*Barry Cornwall.*

Summer or winter, day or night,
The woods are an ever new delight;
They give us peace, and they make us strong,
Such wonderful balms to them belong.

—*Stoddard.*

All the birdies went to school,
In a Pine tree, dark and cool,
At its foot a brook was flowing,
The teacher was a crow,
And what he did not know,
You may be sure was not worth knowing.

Their satchels are hanging up tidy and neat,
They smooth down their feathers and wipe off their feet,
While the wind through the tree-tops goes creeping.
"Speak up loud" says the crow,
"I can't hear, as you know,
While the branches are swaying and creaking."

They are taught the very best way to fly,
To catch the insect that goes buzzing by;
How to cock the head when beginning to sing.
"I've a cold," says the crow,
"Or else I would show,
How the nightingale does when she makes the woods ring."

The books are made of maple leaves,
For paper, bark from white-birch trees,
And for pencil each uses a stick,
"When you write," says the crow,
"Be both careful and slow,
Make your letters look graceful, not thick."

Every birdie builds a nest,
In the place each thinks the best,
While the teacher gives good sound advice
"All the sticks," says the crow,
"You must lay in a row
Before using one, look at it twice."

All at once, with a cold blast
The rain comes falling, thick and fast,
While the old pine tree groans in the gale.
"School is closed," says the crow,
"You must all quickly go,
But to-morrow, come back without fail."

—*The Pine Tree Academy, V. E. Schraff.*

Lowland trees may lean to this side and that, though it is but a meadow breeze that bends them, or a bank of cowslips from which their trunks lean aslope. But let storm and avalanche do their worst, and let the Pine find only a ledge of vertical precipice to cling to, it will nevertheless grow straight. Thrust a rod from its last shoot down the stem;—it shall point to the center of the earth as long as the tree lives.

—*Modern Painters, Ruskin.*

Once a little Pine-tree,
In the forest ways,
Sadly sighed and murmured,
Through the summer days.
'I am clad in needles—
Hateful things!" he cried;
"All the trees about me
Laugh in scornful pride.
Broad their leaves and fair to see:
Worthless needles cover me.

"Ah, could I have chosen,
Then, instead of these,
Shining leaves should crown me,
Shaming all the trees.
Broad as theirs and brighter,
Dazzling to behold;
All of gleaming silver—
Aye, of burnished gold.
Then the rest would weep and sigh
None would be so fine as I."

Slept the little Pine-tree
When the night came down,
While the leaves he wished for
Budded on his crown.
All the forest wondered
At the dawn, to see
What a golden fortune
Decked this little tree.
Then he sang and laughed aloud,
Glad was he and very proud.

Foolish little Pine-tree!
At the close of day,
Thro' the gloomy twilight
Came a thief that way.
Soon the treasure vanished;
Sighed the Pine, "Alas!
Would that I had chosen
Leaves of crystal glass."
Long and bitterly he wept,
But with night again he slept.

Gladly in the dawning,
Did he wake to find
That the gentle fairies
Had again been kind.
How his blazing cyrstals
Lit the morning air!
Never had the forest
Seen a sight so fair.
Then a driving storm did pass;
All his leaves were shattered glass.

Humbly said the Pine-tree,
"I have learned 'tis best
Not to wish for fortunes
Fairer than the rest.
Glad were I, and thankful,
If I might be seen
Like the trees about me,
Clad in tender green."
Once again he slumbered, sad;
Once again his wish he had.

Broad his leaves and fragrant,
Rich were they and fine
Till a goat at noon-day
Halted there to dine.
Then her kids came skipping
Round the fated tree;
All his leaves could scarcely
Make a meal for three.
Every tender bud was nipt,
Every branch and twig was stripped.

Then the wretched Pine-tree
Cried in deep despair,
"Would I had my needles;
They were green and fair.
Never would I change them,"
Sighed the little tree;
"Just as nature gave them
They were best for me."
Then he slept, and waked, and found
All his needles safe and sound.

—The Little Pine Tree, Eudora S. Bumstead.

Through circling seasons night and day,
Forlornly gaunt and wistful,
They voice the same pathetic lay
With echoes weird and tristful.

—The Pines, Samuel Minturn Peck.

Welcome ye shades! ye bowery Thickets hail!
Ye lofty Pines! ye venerable Oaks!
Ye Ashes wild, resounding o'er the steep!
Delicious is your shelter to the soul.

—The Seasons, Selected.

And nobler than the branches of a pine
Aslant upon a precipice's edge
Are the strained spars of some great battleship
Plowing across the sunset.

—Sea Longing, Thomas Bailey Aldrich.

Ye pine groves with your soft and soul-like sounds!
—*Coleridge.*

To really hear this grand symphony, you must listen to the wind playing on the tops of the great primeval coniferous forest, of scores and hundreds of acres in extent. And even then many visits are needed, for there are movements to this symphony—the allegro of the gale, the scherzo of the easy morning breeze, the deep adagio of a rain storm, and the andante of warm days and summer breezes, when you may repose prone upon a soft carpet of pine needles, every sense made alert, yet soothed, by the master-theme you are hearing. —*Getting Acquainted with the Trees,*
J. Horace McFarland.

Strange minstrels on their airy harps
Among your trembling branches played.
—*Julia C. R. Dorr.*

The tale was this:
The wind, when first he rose and went abroad
Through the waste regions, felt himself at fault,
Wanting a voice; and suddenly to earth
Descended with a wafture and a swoop,
Where, wandering volatile from kind to kind,
He wooed the several trees to give him one.
First he sought the ash; the voice she lent
Fitfully with a free and lasting change
Flung here and there its sad uncertainties:
The aspen next; a fluttered frivolous twitter
Was her sole tribute: From the willow came,
So long as dainty summer dressed her out,
A whispering sweetness, but her winter note
Was hissing, dry, and reedy: lastly the pine
Did he solicit, and from her he drew
A voice so constant, soft, and lowly deep,
That there he rested, welcoming in her
A mild memorial of the ocean-cave
Where he was born.
—*The Wind and the Pine-Tree, Sir Henry Taylor.*

His praise, ye winds; that from four quarters blow,
Breathe soft or loud; and wave your tops, ye pines—
With every plant, in sign of worship, wave.
Fountains, and ye that warble as ye flow
Melodious murmurs, warbling, tune his praise.
Join voices, all ye living souls; ye birds,
That singing up to heaven's gate ascend,
Bear on your wings, and in your notes, his praise.
—*Song of Praise, Milton.*

The sea-suggesting pines, with the moan of the billow in their branches.
—*Longfellow.*

And winds laden with odors—you can not escape their sweet comradeship. And the winds blowing across a field where haycocks exhale fragrance, who can escape their witchery? Such winds know how to spoil waters and fields and forests of spikenards and balsams. I have inhaled fragrance from winds blown fresh from the sea through moors of purple heather, and can I forget the poetry of it even in in Heaven?
—*In God's Out-of-Doors, William A. Quayle.*

A noise was like the rustling of a host,
Or like the sea that breaks upon the shore—
It was the pine-tree's murmur.
—*The Voice of the Pine, Richard Watson Gilder.*

But the trees all kept their council
And never a word said they,
Only there sighed from the pine tops
A music of seas far away.
—*The Singing Leaves, Lowell.*

The wind that breathes of columbines
And bleeding hearts that crown the rocks;
That shakes the balsam of the pines
With music from his flashing locks,
Stops at my city door and knocks.

He calls me far a-forest: where
The twin-leaf and the blood-root bloom;
And, circled by the amber air,
Life sits with beauty and perfume
Weaving the new web of her loom.
The Wind, Madison Cawein.

Like two cathedral towers these stately pines
Uplift their fretted summits, tipped with cones;
The arch beneath them is not built with stones,
Not Art but Nature traced these lovely lines
And carved this graceful arabesque of vines
No organ but the wind here sighs and moans,
No sepulcher conceals a martyr's bones,
No marble bishop on his tomb reclines.
Enter! The pavement, carpeted with leaves,
Gives back a softened echo to the tread!
Listen! The choir is singing; all the birds,
In leafy galleries, beneath the eaves,
Are singing; Listen! ere the sound be fled,
And learn there may be worship wothout words.
—*My Cathedral, Longfellow.*

In the deep, deep silence of the "Cathedral Woods' * * * I do not believe that any one who has once fully received from the deep forest that which it gives out so freely and constantly can ever think of things trivial, or of minor annoyances, while again within its soothing portals. —*Getting Acquainted with the Trees,*
—J. Horace McFarland.

We wandered to the pine forest
That skirts the Ocean's foam;
The lightest wind was in its nest,
The tempest in its home.
The whispering waves were half asleep,
The clouds were gone to play,
And on the bosom of the deep
The smile of Heaven lay.
* * *
We paused amid the pines that stood
The giants of the waste,
Tortured by storms to shapes as rude
As serpents interlaced,
And soothed by every azure breath
That under heaven is blown,
To harmonies and hues beneath,
As tender as its own;
Now all the tree-tops lay asleep,
Like green waves on the sea,
As still as in the silent deep
The ocean woods may be.
* * *
A spirit interfused around,
A thrilling silent life,
To momentary peace it bound
Our mortal nature's strife.
* * *
There lay the glade and neighboring lawn,
And through the dark green wood
The white sun twinkling like the dawn
Out of a speckled cloud.
Sweet views which in our world above
Can never well be seen
Were imaged by the water's love
Of that fair forest green.
And all was interfused beneath
With an elysian glow,
An atmosphere without a breath,
A softer day below.
—The Recollection, Percy Bysshe Shelley.

The pine is the tree of silence. Who was the Goddess of Silence? Look for her altars amid the pines,—silence above, silence below. One walks over a carpet of pine needles almost as noiselessly as over the carpets of our own dwellings. Do these halls lead to the chambers of the great, that all noise should be banished from them?—*John Burroughs.*

A characteristic air of loneliness and wild seclusion belongs to these forests that contrasts strikingly with the cheerful tone of the other class.
—*Forest Trees and Forest Scenery, G. Fred Schwarz.*

I fain would seek that brotherhood,
The monastery of the wood,
Earth-bound and tempest-tossed, yet given
The blessed calm and peace of heaven!

Tall-hooded monks in solemn band,
Uplifting prayerful arms they stand,
Intoning whispered orison
And glad triumphant antiphon!

Sublimely patient, grandly calm!
Dispensing life-inspiring balm,
Till wind-swept plain and forest dense
Are comforted with rich incense.
—The Comfort of the Pines, Zitella Cocke.

We seek remembered wood-paths, fragrant with breath of pines,
In flecks the sunlight golden through leafy arches shines,
The wild birds sweet are calling through all the balmy day,
The liquid song of wood-thrush pours forth in joyous lay.

Oh! wondrous is the glory in Autumn's changing light,
Like fairy land the beauty within the woodlands bright,
The golden Autumn sunshine, "God's everlasting smile"
With pure, sweet radiance lighteth each shadowy forest aisle:
A subtle balsam odor breathes through the dreamy air,
A charm steals o'er the spirits, a lulling rest from care.
—A Woodland Hymn, Phebe A. Holder.

But the Pine rises in serene resistance, self contained; nor can I ever without awe stay long under a great Alpine cliff, far from all house or work of man, looking up to its companies of Pine, as they stand on the inaccessible juts and perilous ledges of the enormous wall, in quiet multitudes, each like the shadow of the one beside it—upright, fixed, spectral, as troops of ghosts standing on the walls of Hades, not knowing each other—dumb forever. All comfortless they stand, between the two eternities of the Vacancy and the Rock: yet with such iron will, that the rock itself looks bent and shattered beside them—fragile, weak, inconsistent, compared to their dark energy of delicate life, and monotony of enchanted pride;—unnumbered, unconquerable. —*Modern Painters. Ruskin.*

The distinguishing feature of this great tree group is the cone-bearing habit.

Almost all cone-bearing trees are called Pines by those who have not studied them.

To know anything at all of the spruces, pines and hemlocks is to love them for the refreshment there is in their living presence. To walk among primeval hemlocks brings healing to the mind and peace to the soul, as one realizes that "the groves were God's first temples," and that God is close to one in these beneficient solitudes, where petty things must fall away, vexations cease, and man's spiritual nature absorb the message of the forest.

—*Getting Acquainted with the Trees,*
J. Horace McFarland.

Old as Jove,
Old as love,
Who of me
Tells the pedigree?
Only the mountains old,
Only the waters cold,
Only the moon and star,
My coevals are.
Ere the first fowl sung,
My relenting boughs among,
Ere Adam wived.
Ere Adam lived,
Ere the duck dived,
Ere the bees hived,
Ere the lion roared,
Ere the eagle soared,
Light and heat, land and sea,
Spake unto the oldest tree.

—*The Pine Tree, Emerson*

Beneath my shade the red man slipping,
Himself a shadow, stole away;
A paler shadow follows him!
Races may go, or races stay,
The cones upon my loftiest limb
The winds will many a year be stripping.
* * * *
In the primeval depths, embowering
My broad boughs with my branching peers,
My gums I spilled in precious drops—
Ay, even in those elder years,
The eagle building in my tops,
Along my boughs the panther cowering.

—*The Pine Tree, Harriet Prescott Spofford.*

The Pine is the mother of legends. —*Lowell.*

They rustle and whisper like ghosts,
They sigh like souls in pain,
Like the movement of stealthy hosts
They surge and are silent again.
The midnight hush is deep,
But the Pines—the spirits distrest—
They move in somnambulant sleep—
They whisper, and are not at rest.

—*John Henry Boner.*

Regal and stately behold it stand
Above its brethren, towering grand,
A sentinel guarding the sleeping land.
Beauty and grace in its form combine,
A monarch, born of a noble line,
Long may it be, ere its race decline!
Frost shall not wither a leaf of thine,
Fearless and fadeless Pine!
* * * *
Calm and unbending, while other trees
Are tossed like ships upon stormy seas;
Serenely posed in majestic ease,
It meets the blast, but makes no sign,
And its tasseled plumes, whose needles shine,
Pour out an odorous incense fine,
A healing breath of balsam wine,
Generous, goodly Pine!

—*The Pine Tree, Mary F. Tucker.*

Where the peak leaned to the valley, the trunk of a giant Pine jutted forth slantingly from a roothold a little below the summit. Its top had long ago been shattered by lightning and hurled away into the depths; but from a point some ten or twelve feet below the fracture, one gaunt limb still waved green with persistent, indomitable life. —*C. D. G. Roberts.*

Cedar, and pine, and fir, and branching palm,
A sylvan scene, and as the ranks ascend
Shade above shade, a woody theatre
Of stateliest view. —*Paradise Lost, Milton.*

The Pine stands compact like one of its own cones, slightly curved on its sides, finished and quaint as a carved tree in some Elizabethan garden; and instead of being wild in expression, forms the softest of all forest scenery; for other trees show their trunks and twisted boughs, but the Pine, growing either in luxuriant mass or in happy isolation, allows no branch to be seen. Summit behind summit rise its pryamidal ranges, or down to the very grass sweep the circlets of its boughs; so that there is nothing but green cone and green carpet. —*Modern Painters, Ruskin.*

A WORD WITH THE TEACHERS

Winter is the time to study evergreens. The teacher who does not avail herself of this opportunity to awaken in her pupils an interest in the evergreens, misses much personal pleasure and deprives herself of a general responsive enthusiasm easily obtained.

The psychological time to begin the study of the evergreen tree is the yule-tide season. This is one of the happiest times of a child's life, and the mind is then easily directed to the evergreens so extensively used for decoration in holiday festivities.

Some one has said that man is three-fourths sentiment, and we know that our friends are chosen because of an indefinable something not depending at all upon what physiology describes. So our love for the trees depends less upon a scientifically botanical knowledge, than upon the ability to recognize our tree friends, and a greater appreciation of that intangible something called sentiment which surrounds these "lofty Pines, bearded with moss, predominant o'er all."

To know the tree's name is the beginning of the acquaintance, and we have all the rest of our lives in which to learn more of the individuality of these unassuming neighbors who so constantly and generously add to our pleasures.

Evergreen branches are easily gathered in abundance and brought to the school room and are of decided decorative value. And a teacher who appreciates the importance of visual impressions will have specimens mounted on large card boards and plainly labelled. Children may be encouraged to mount their own specimens and with the main characteristics noted and appropriate quotations a book can be made which is a real pleasure and of inestimable value for reference.

The importance of blackboard drawings can hardly be over estimated. Each evergreen has an individual trait by which it can be recognized, such as the bundle-like needles of the Larch; the spiral arrangement of the Spruce needles; and the erect cones of the Fir. It is easy to have on the blackboard an enlarged drawing of the White Pine needles with such a statement as: "The White Pine has 5 pointed leaves in a sheath." Smaller children can make borders of the bundles of the White Pine needles around a conventional pine tree or cone.

The trees give excellent opportunities for studies of distinctive educational worth which can easily be correlated with other lessons; written and oral lessons in English; suggestive drawing lessons, cover designing, story illustrations, etc.; in Geography, range of growth and distribution, effect on climate and stream flow; for morning exercises, the memorizing of rhymes and quotations about a specific tree; and these are only a few of the innumerable uses for correlated lessons.

Every school should plant a group of the various local evergreens. This lends attraction and interest and is an ornament to the school grounds. And immediately each progressive little tree, in an unassuming and dignified manner and without stipend, cheerfully takes up the duties of Assistant Instructor in Evergreens.

There is perhaps no study that more easily arouses interest and in which more rapid advancement can be made with a minimum amount of supervision and time.

E. R. M.

INDEX

Aldrich, Thomas Bailey:
Frost-Work 25
Sea Longings 28
Boner, John Henry:
They rustle and whisper 31
Bryant:
Beneath the forest 27
Bumstead, Eudora S.:
The Little Pine Tree 28
Burroughs, John:
The Pine is the tree of silence 30
Carmen, Bliss:
Earth's Lyric 23
The Joys of the Road 21
Cawein, Madison:
The Wind 29
Clark, Jennie G.:
Secrets 23
Clark, Luella:
The Fir Tree 17
Cocke, Zitella:
The Comfort of the Pines 30
Coleridge:
Ye pine groves 29
Cornwall, Barry:
With such noise 27
Dorr, Julia C. R.:
Strange minstrels 29
Emerson:
As sunbeams stream 26
The Pine Tree 31
The Snow Storm 25
Field, Eugene:
A Norse Lullaby 9
Gilder, Richard Watson:
The Voice of the Pine 29
Going, Maud:
Junipers or Red Cedars 23
Larch and Bald Cypress 19
The Pine in cold regions 24
Heine:
A lonely Fir tree 25
Away on a northern mountain 24
Hemans, Mrs.:
The Voice of Spring 13
Higginson, Thomas Wentworth:
The Snowing of the Pines 25
Holder, Pheobe A.:
A Woodland Hymn 30
Holland, J. G.:
Bitter Sweet 24
Holmes, Oliver Wendell:
Midsummer 26
The Autocrat of the Breakfast Table 15
Hood, Thomas:
I remember, I remember 17
Hunt, Leigh:
The Pine, long-haired and dark 9
Huntington, Annie Oakes:
Larches 13
Keats:
Ode to Psyche 21
Keeler:
Arborvitae 21
White Pine 9
Kelso, Hugh:
A scarlet sash the woodbine ties 23
Larcom, Lucy
March 13
Longfellow:
Evangeline 15
Hiawatha 23
" 17
" 13
My Cathedral 29
O Hemlock Tree 15
The Sea-suggesting pines 29
Voices of the Night 27
Lounsberry, Alice:
Bald Cypress 19
Lowell:
Biglow Papers 26
" " 23
The Pine 31
The pointed cedar shadows 23
The Singing Leaves 29
To a Pine Tree 25
McFarland, J. Horace:
Spruces, Pines and Hemlocks 31
The soothing silence of the woods 30
The symphony of the Pines 29
Mathews, F. S.:
Bald Cypress 19
Hemlock 15
Red Spruce 11
Milton:
Paradise Lost 31
Song of Praise 29
Munkittrick, R. K.:
The wind makes solos 27
Padelford, Sarah C.:
The Beautiful Woods 11
Peck, Samuel Minturn:
The Pines 28
Quayle, William A.:
The Cedar 23
The fragrant odors of the pines 29
Roberts, C. D. G.:
Giant Pine 31
Robinson:
Under the Cypresses 19
Rogers, Julia E.:
Tamarack 13
White Pine 9
Rossette, Dante G.:
A Young Fir-Wood 17
Ruskin:
Arborvitae 21
The delicate beauty of the young pines 26
The Pine stands compact 31
The Pine's strength and power 30
The straightness of the Pine 27

Schraff, V. E.:
The Pine Tree Academy 27
Schwarz, G. Fred:
Forest Trees and Forest Scenery 30
Scott:
Boat Song, Lady of the Lake 9
Shakespeare:
You may as well forbid 11
Shelley:
The Cloud 25
The Invitation 19
The Recollection 30
Spenser:
High on a hill a cedar grewe 23
Spofford, Harriet Prescott:
The Pine Tree 31
Stoddard:
The woods are an ever new delight 27
Stokes, Susan:
Fir 17
Sudworth, George B.:
Arborvitae 21
Bald Cypress 19
Firs 17
Hemlock 15
Junipers or Red Cedars 23
Larches 13
Red Spruce 11
White Pine 9
Taylor, Bayard:
December 24
Taylor, Sir Henry:
The Wind and the Pine Tree 29
Thomas, Edith M.:
O singing Wind 17
The God of Music 25
Thoreau, Henry D.:
Arborvitae 21
Trowbridge, J. T.:
Midwinter 25
Tucker, Mary F.:
The Pine Tree 31
Vedder, David:
Nature's Temple 26
Weed, Clarence M.:
The Hemlock 15
Whittier:
Snow Bound 19
The delicate tracery 25
The Funeral Tree of the Sokokis 26
Wordsworth:
The Excursion 17
The Spirit of the Season 13
Anonymous:
How bright the unfading evergreen 24
If Mother Nature patches 9
Marjorie's Almanac 13
The bass of the tree orchestra 25
The dark Pine wears his cap of snow 24
The Little Fir Trees 26
The Seasons 28
The silence of the Pines 24

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